

ABSTRACT OF THE DISCLOSURE

A vacuum heat treatment furnace comprising a furnace shell, a casing arranged in an inner side of the furnace shell, a heat insulating layer consisting of a thick plate-like alumina-silica series ceramic fiber blanket and a thin plate-like alumina series ceramic material arranged in an inside of the casing, and a heater arranged in a heating room surrounded by the heat insulating layer. A method of and apparatus for measuring a carbon concentration in an atmosphere in a treating room having a reduced pressure, wherein a carbon concentration measuring body is transferred from an external portion of a furnace shell of a heat treatment furnace into the treating room within the furnace shell, the carbon concentration measuring body is reacted with the atmosphere in the treating room for a predetermined time, the carbon concentration measuring body is gradually cooled for a predetermined time, and an amount of carbon in the carbon concentration measuring body is measured in the atmospheric pressure at a room temperature.